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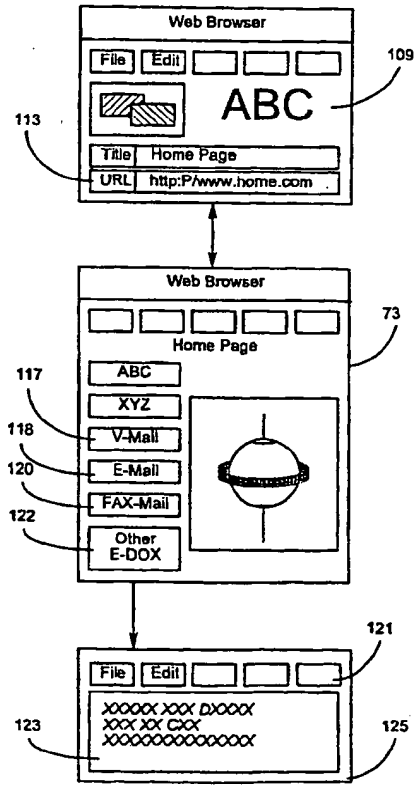
(54) Title: SERVICE INDEPENDENT ELECTRONIC DOCUMENT SERVER

(57) Abstract

A retrieval and auditing system for electronic documents specifically addressed and forwarded over an Internet connection, including e-mail, voice-mail, and facsimile (FAX) documents, provides a gateway interface in a home page retrievable without regard to a particular Internet Service Provider granting access to the Internet. In a preferred embodiment a security protocol is required to launch the gateway from a home page, ensuring that the person granted access to specifically-addressed electronic documents is the addressee.



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Service Independent Electronic Document Server

Field of the Invention

The present invention is in the area of electronic data-transmission services and is particularly relevant to Internet users who need service-independent access to their electronic documents.

Background of the Invention

By using an Internet service provider such as CompuServe, MCI, Prodigy, America On-line, NetCom, or any one of a number of such on-line services, many computer owners and users, individuals as well as businesses, gain access to the Internet communication system. This Internet service has exhibited remarkable growth worldwide in recent years partly due to introduction of an information-locating software tool called the World Wide Web (WWW), also known in the art simply as the Web.

The Web is a graphical interface. It is based on index and text searches and facilitates access to world-wide computer-stored data, also known in the art as hypermedia, which may represent text, sound, graphics, video, or mixtures of these. Web access is available through a growing number of service providers, some of which are listed above.

Web systems typically feature software utilities called browsers, which help users in searching through on-line information. A browser interprets the Web's hypertext markup language and provides a graphical on-screen interface including screen buttons and data-entry and display fields, which aid a user in finding, selecting, viewing and transmitting information. A browser also facilitates exchange of electronic documents by one user with other users anywhere in the world.

Electronic documents on the Web may take many different forms, among them electronic mail (e-mail), voice mail (v-mail), faxes, scanned documents, electronically created documents, software, sound recordings, and video recordings.

Typically, Internet users who permit public access to their own data bases for commercial or educational purposes use a home page a gateway to their information resources. A home page is a graphical interface unique to an individual user, and it functions in part as a table of contents. For example, a computer manufacturer may provide a home page on the Internet WWW with active selection areas (buttons) directing control and display to such as product information, prices, system product capabilities, and other web sites. Buttons and the like on one web page also can cause control to jump to another web page. A home page is created with the hypertext markup language.

E-mail is an Internet service separate from individual home pages. E-mail differs from home pages, browsers, and the like in that it uses different protocols and languages. Internet service providers such as CompuServe Information Service, MCI Mail, Genie, America On-line, NetCom, and others typically provide access to e-mail via a menu or icon which switches control to an e-mail utility.

Because an e-mail gateway doesn't provide direct access to the Internet service, users cannot access e-mail through a Web server or access and browse the Internet through an e-mail server. Users typically access their e-mail by means of a dialed-up telephone connection to a local e-mail service provider, and therefore, no long-distance telephone charges are associated with e-mail service.

Up to the date of the present invention, users cannot access their e-mailboxes without using the service of their e-mail provider, and therefore, they cannot take advantage of all what the Web has to offer. What is clearly needed is a system that enables Internet subscribers to access their e-mail anywhere in the world using the facilities of the Web, independent of service provider. Such a system may take the form of a customized home page which operates in conjunction with a special gateway interface inserted between a standard Internet server and electronic document servers. The home page in this configuration provides both a pathway and a security barrier through which internet subscribers can access their mailboxes at their e-mail service provider.

Summary of the Invention

In a preferred embodiment of the present invention, an Internet home page interface is provided comprising indicia identifying the home page owner; and an on-screen active selection area for access to an electronic document data base containing electronic documents addressed specifically to the home page owner. Selecting the on-screen active selection area launches control routines connecting the user through an on-screen window to an electronic data base containing documents addressed specifically to the home page owner. The home page owner may activate the on-screen window and select and review stored documents therethrough.

Also in a preferred embodiment a user is required to practice a security protocol to activate the on-screen window providing access to the specifically-addressed electronic documents. The security protocol can be as simple as a password entered and verified. The specifically-addressed electronic documents may be e-mail documents, facsimile (FAX) documents, voice mail files, or other sorts of electronic documents sent to a specific recipient. The invention provides a unique electronic document auditing system usable from any station providing Internet access, regardless of the service provider controlling such access.

The present invention provides a means for an Internet user to access electronic documents over the Internet, such as e-mail and specifically addressed to the user, even though access to the Internet user's usual Internet Service Provider is not available. The advantage is a dramatic saving (long distance phone charges) and convenience for the user.

Brief Description of the Drawings

Fig. 1 is a block diagram illustrating incompatibility of Web service with e-mail service as it exists in the current art.

Fig. 2 is a block diagram illustrating how Internet users may remotely access their e-mail using the facilities of the Web independent of provider. according to an embodiment of the present invention.

Fig. 3 illustrates a sample set of windows providing a user

interface through a Web browser according a preferred embodiment of the present invention.

Fig. 4 is a flow diagram depicting a sequence of steps for accessing electronic documents by means of a link feature of a home-page according an embodiment of the present invention.

Description of the Preferred Embodiments

Fig. 1 is a block diagram of point-to-point communication links illustrating typical nodes in a Web system and the incompatibility of Web service with e-mail service as it is known in the art. A first user station 15 comprises a computer system 31, a high-speed modem 29, and Internet communication software having well known elements of such communication software including a browser tool 33 and an e-mail tool 37. A local Internet service provider (ISP) 11, usually commercially operated, comprises a Web server 19, an e-mail server 21, and an Internet port 45 that provides access to the Internet 43. E-mail server 21 runs an e-mail program 23 and maintains a set of client mailboxes 25.

A remote ISP 13 comprises, but is not limited to, a Web server 39, an Internet port 47, and an e-mail server which is not shown. Web server 39 maintains a set of data bases 41 one of which is a data base 51 owned by a company named abc.inc.

A second user station 17 comprises a computer system 57, a high-speed modem 59, and Internet communication software having the well known elements of such communication software including a browser tool 53. User station 17 is called a kiosk in the art, and the Internet service associated with user station 17 is transparent to users. That is, user station 17 seems directly connected to Internet 43 by means of an Internet port 49 using point-to-point (PPP) or serial-line interface protocols (SLIP).

Since file-transfer protocols (FTP), document languages, and gateway interfaces for e-mail and the Web differ significantly, users cannot access e-mail documents by means of browser 33, nor can they navigate the Internet from e-mail window 37. To illustrate the difference between Web and e-mail communication, three different communication situations are described below.

To retrieve e-mail documents from one of mailboxes 25, an Internet subscriber working at station 15 using computer 31 logs on to ISP 11 by means of modem 29 using a telephone line 27 and invokes e-mail window 37. The subscriber, using various screen buttons in e-mail window 25, may access messages contained in one of mailboxes 25, and by using text fields may view, edit, compose and deliver e-mail messages to a remote service provider.

To access Internet 43, a subscriber working at station 15 invokes browser window 33 instead of e-mail window 37. Browser window 33 comprises buttons, graphics, and text fields that enable the subscriber to navigate the internet and retrieve and display multimedia documents. To access data base 51 at remote provider 13, for example, the subscriber may enter a universal resource locator (URL) for data base 51 in an address field 35 of browser 33. The subscriber, using various screen buttons associated with browser 33, may view or retrieve information contained in data base 51. It will be apparent to one with skill in the art that there are many possible variations in the implementation of entering a URL for a remote data base.

User station 17, described above as a kiosk, provides persons with Internet access while away from customary equipment. Such kiosks, for example, may be placed in places of public concentration, such as airline terminals.

As also described above a kiosk user may invoke browser 53 and connect via the Internet 43 to ISP 13, where access may be made to such as data base 51 that belonging to company abc.inc. Kiosk users, however, cannot access mailboxes 25 at ISP 11 by means of browser 53. Kiosk users may only access the mailboxes by means of a dial-up telephone connection, most likely long distance, with ISP 11.

In summary, in current art as illustrated above, subscribers to ISP 11 may access mailboxes 25 through the ISP's e-mail server, or, by using the ISP's Web server, they may access a remote data base 51 (or a large number of other remote data bases of which data base 51 is a single example). The same subscribers, however, cannot access mailboxes 25 from a remote kiosk 17, nor can they access the Internet by using an ISP's e-mail server. As a result, e-mail subscribers cannot take advantage of all what the Web has to offer.

The present invention cooperates with the conventional facilities of the World Wide Web to realize real-time remote access to any kind of electronic document, including e-mail. The invention includes a home page that operates in conjunction with suitable gateway interfaces inserted between an Internet server and various electronic document servers.

Fig. 2 is a block diagram illustrating how Internet users may remotely retrieve an electronic documents of all sorts from their mailboxes using the facilities of the Web and a system according to an embodiment of the present invention.

In the system of Fig. 2, user station 53 comprises, a high-speed modem 61, and a computer system 63 having well-known elements of such a computer system, including a Web-browser 65 and PPP or SLIP communication software (not shown). Also in the system, a kiosk 55 comprises a high-speed modem 105, and a computer system 107 having the well known elements of such a computer system, including a Web-browser 109 and PPP or SLIP communication software (not shown). An ISP 51 comprises a Web server 59 having access to the Internet 99 through an Internet port 97, and communication software (not shown) to support communication protocols and languages. Computer system 63 located in user station 53 communicates with Web server 59 by means of modem 61 and telephone line 83 using communication protocols such as PPP or SLIP.

A second ISP 57, located physically distant from the site of user station 53 and kiosk 55, comprises a Web server 67 and a set of electronic document servers 69. Both Web server 67 and document servers 69 have access to Internet 99 through an Internet port 101. Each server of electronic document servers 69 runs software that supports a specific application. Illustrated are an e-mail program 79, a fax program 81, a voice-mail program 85 and various other programs 87 including video and graphics.

Web server 67 runs unique control routines according to an embodiment of the present invention that supports a set of data bases 71. Each data base belongs to (or is assigned to or associated with) a different client. A single data base of set 71 includes a home page 73, individualized to a specific client, that provides software links to various

lower-order data bases maintained by electronic document server 69. Examples of such lower-order data bases are an e-mail data base 89, a fax data base 91, a voice mail data base 93, and other electronic documents in data base 95. Home page 73 is created with hypertext markup language (HTML), as are other home pages, and provides access to data bases 89, 91, 93, and 95 as described below through software links. Those with skill in the art will recognize that the technology of HTML is old in the art, and that this portion of the present invention may be implemented with little difficulty by those with skill in the art, using well known techniques.

A path is provided from Web server 67 to data bases 89, 91, 93, and 95 by means of software links programmed into a client's home page. Each link uses a common gateway interface (CGI) to translate HTML into a particular data base language. Shown in Fig. 2 are CGIs 77, 78, 80, and 82 leading to programs 79, 81, 85, and 87, which in turn access data bases 89, 91, 93, and 95 respectively.

A subscriber may use the facilities of the Web to access his or her home page on ISP 57 from anywhere on Earth, and then use the link features in the home page to access the electronic document data bases. At the access station, such as a kiosk, the subscriber can retrieve and read e-mail messages, faxes, listen to voice mail, and further receive other sorts of electronic documents, such as videos or audio files. If the access station (kiosk) has a printer, floppy drive, and other pertinent equipment, the subscriber may also make suitable copies of electronic documents.

Fig. 3 shows an example set 111 of windows accessible in a home page for accessing electronic documents by using the facilities of a Web browser such as Web browser 109 at kiosk 55 (Fig. 2) according to an embodiment of the present invention. A user invokes browser 109 and enters a URL for his or her home page 73 in field 113 of browser 109. An initiation signal then causes control to retrieve home page 73 and display it as an interface to data and other Web destinations. Operation to this point are conventional, and well-known in the art. Home page 73, however, is different than conventional home pages, as described above with reference to Fig. 2, having on-screen links to electronic documents reserved for the home page "owner", such as e-

mail and faxes.

As an example, home page 73 in Fig. 3 has a button 117 labeled v-mail, for voice mail. By selecting button 117 a user is linked to data base 93 (Fig. 2) through CGI 80 and voice mail program 87. This feature is unique to embodiments of the present invention. A voice mail window 125 is invoked having common elements of such a voice mail window including, but not limited to, a text field 123, and a set of function buttons 121. As is common in the art with such windows, function buttons 121 enable users to list, replay, save, delete, record and deliver voice mail messages.

Similarly, in the embodiment of the present invention described with reference to Fig. 3, subscribers, using the link buttons 118, 120, and 122 access their e-mail, fax, and other electronic documents.

In another embodiment of the present invention, a traveling Internet user may use his or her home page 73 to link to other data bases, such as a personal multi-lingual dictionary featuring pronunciation, a spelling checker, or a thesaurus; or indeed, almost any other sort of digital data or control routines.

There are well known methods implemented in the art to restrict access to home pages and data bases. The same methods may be used to protect electronic document data bases from unwanted access. For example, access to electronic document data bases may be restricted by requiring a user to provide a password and user name before access to a home page or a specific electronic document data base is granted. A software routine, embedded in each of the various electronic document programs 79, 81, 85, and 87 (Fig. 2) may determine the validity of an entered password. If a password is valid, a user is granted access to a desired electronic data base. Otherwise, a rejection message may be displayed in window 123 (Fig. 3).

In the event that a user accesses his electronic document data bases from a computer other than his own, a method may be implemented to prevent an electronic document from being saved on a peripheral device without permission of the owner. Data base protection may be implemented with little difficulty by those with skill in the art, using well-known equipment and techniques.

Fig. 4 is a logic flow diagram illustrating a sequence of steps for

accessing electronic documents by means of link features of a home-page according to embodiments of the present invention. Beginning at step 124, a telephone dial-up procedure connects an Internet user to an ISP. The ISP may be one to which the user subscribes (a local ISP), in which case there will likely be at least a link for e-mail for the user; or the ISP may be a provider associated with a kiosk anywhere on Earth. At step 125, if the ISP is one to which the user subscribes, the dialed ISP expects the user to enter a user name and a password, which are then evaluated. If not, there is no need for identification.

When logged on, the user launches a Web browser at step 127. The browser, at step 129, initiates HTML. The user may now branch from control juncture 130 in one of several ways. For example, the user may choose to browse the Internet at step 143, enter a URL for his or her home page and jump at step 131, or exit at step 145.

If the user launches his home page, he may, at step 133, launch a desired electronic document access system, which establishes CGI. A password or other security ID may be required at this point. At step 137, the user may view, edit, save, compose, forward or deliver electronic documents. Continuing with step 139, users may exit an electronic document program. At step 140 the user may exit the home page and return to the browser to browse the Internet at step 143. Of course, it may not be required to exit an electronic document program to exit the home page.

It will be apparent to those with skill in the art that there will be many alterations that might be made in the embodiments of the invention described herein without departing from the spirit and scope of the invention. There are, for example, many designs one might use for a home page interface, and many known methods of affording a user selection to alternative control pathways. Programming, too, is highly individualistic, and there are therefore many code combinations that might perform the same or similar functions. Arrangement and nature of electronic document databases can vary considerable, as well. There are similarly many sorts of variations one might make while staying within the spirit and scope of the invention. Accordingly, the inventor intends that the scope of the invention be defined by the claims below.

What is claimed is:

1. An Internet home page interface comprising:

indicia identifying the home page owner; and

an on-screen active selection area for access to an electronic document data base containing electronic documents addressed specifically to the home page owner;

wherein selecting the on-screen active selection area launches control routines connecting the user through an on-screen window to an electronic data base containing documents addressed specifically to the home page owner, and wherein the home page owner may activate the on-screen window and select and review stored documents therethrough.

2. An Internet home page as in claim 1 wherein a user is required to practice a security protocol to activate the on-screen window providing access to the specifically-addressed electronic documents.

3. An Internet home page as in claim 2 wherein the security protocol is entry and verification of a password.

4. An Internet home page as in claim 1 wherein the specifically-addressed electronic documents are e-mail documents.

5. An Internet home page as in claim 1 wherein the specifically-addressed electronic documents are facsimile (FAX) documents.

6. An Internet home page as in claim 1 wherein the specifically-addressed electronic documents are voice mail files.

7. An electronic document auditing system comprising:

a computerized station including a video monitor and video driving apparatus;

an electronic communication link to a remote server;

a home page interface stored at the remote server, assigned to a home page owner, and accessible from the computerized station through the remote server;

an electronic document data base at the remote server containing documents specifically addressed to the home page owner; and

a gateway to the electronic document data base launchable from the home page interface;

wherein a home page owner may remotely access the home page from the computerized station, display the home page on the video monitor, launch the gateway, providing an on-screen window, and retrieve and audit the specifically-addressed electronic documents from the electronic document data base through the on-screen window.

8. An electronic document auditing system as in claim 7 wherein a user is required to practice a security protocol to launch the gateway activating the on-screen window providing access to the specifically-addressed electronic documents.

9. An electronic document auditing system as in claim 8 wherein the security protocol is entry and verification of a password.

10. An electronic document auditing system as in claim 7 wherein the specifically-addressed electronic documents are e-mail documents.

11. An electronic document auditing system as in claim 7 wherein the specifically-addressed electronic documents are facsimile (FAX) documents.

12. An electronic document auditing system as in claim 7 wherein the specifically-addressed electronic documents are voice mail files.

13. An Internet Service Provider (ISP) comprising:

an Internet port;

a web server providing access to a subscriber's home page;

a common gateway Interface (CGI) coupled to the subscriber's home page through an on-screen selection mechanism;

an electronic document program operable through the CGI; and

an electronic document data base wherein electronic documents addressed to the home page owner are received and stored;

wherein a home page accessed and displayed presents the on-screen selection mechanism to a user, and selection of the selection mechanism activates a window through which the electronic documents in the electronic data base and addressed to the home page owner may be retrieved and examined.

14. An ISP as in claim 13 wherein a user is required to practice a security protocol to launch the CGI activating the on-screen window providing access to the specifically-addressed electronic documents.

15. An ISP as in claim 14 wherein the security protocol is entry and verification of a password.

16. An ISP as in claim 13 wherein the specifically-addressed electronic documents are e-mail documents.

17. An ISP as in claim 13 wherein the specifically-addressed electronic documents are facsimile (FAX) documents.

18. An ISP as in claim 13 wherein the specifically-addressed electronic documents are voice mail files.

19. A method for accessing and auditing specifically-addressed electronic documents over the Internet, comprising steps of:

(a) gaining Internet access through a computerized station including a video monitor and video driving apparatus;

(b) retrieving and displaying a home page stored in a memory at a remote server;

(c) launching a common gateway interface (CGI) to an electronic document program by selecting an active screen area in the displayed home page;

(d) interacting with a window presented in response to step (c) to retrieve and audit the specifically-addressed electronic documents through the window.

20. The method of claim 19 further comprising a step for performing a

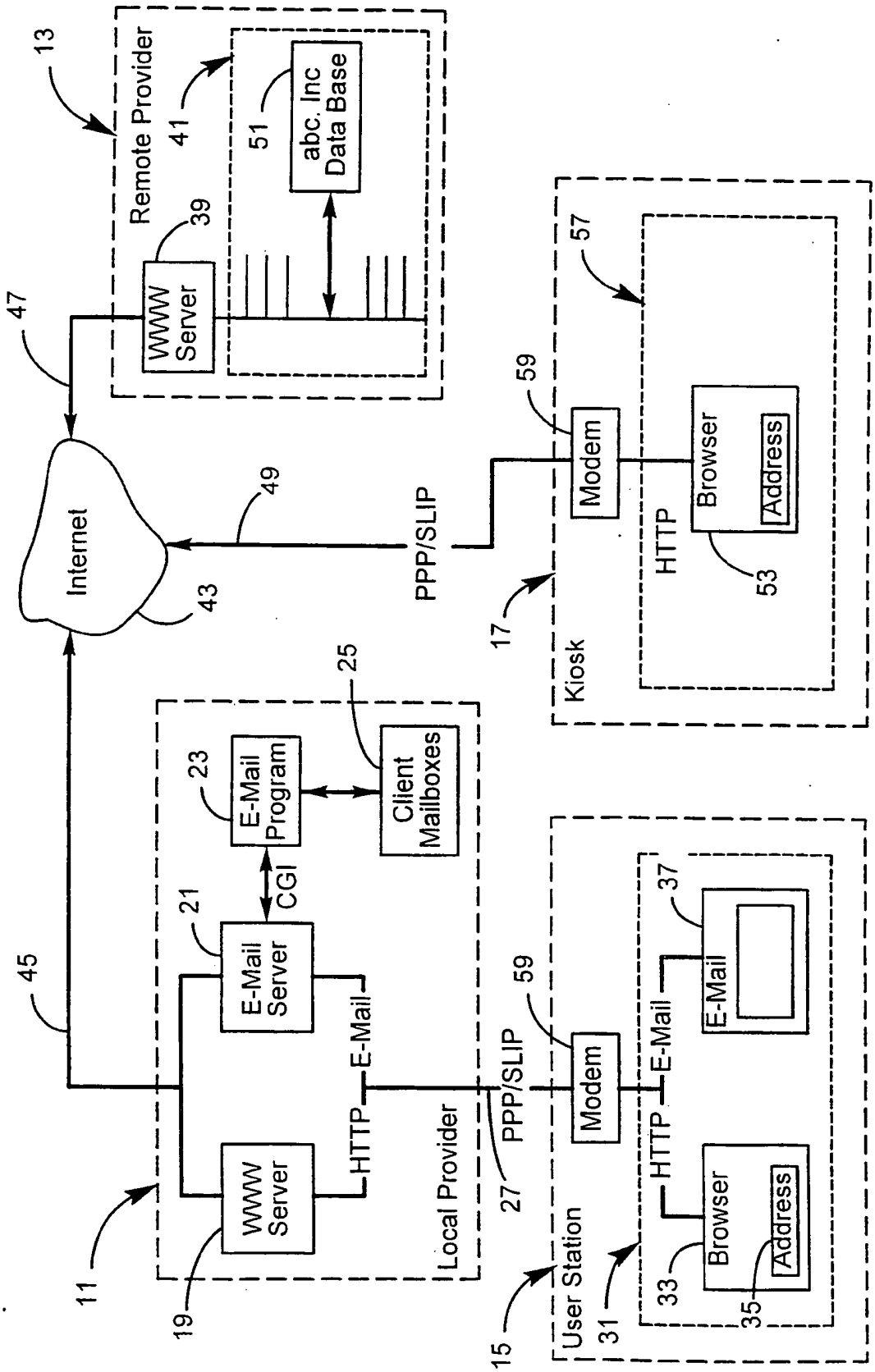
security protocol as a necessary step to launching the CGI.

21. The method of claim 20 wherein the security protocol comprises entering a verifying a password.

22. The method of claim 19 wherein step (d) comprises retrieving and auditing e-mail documents.

23. The method of claim 19 wherein step (d) comprises retrieving and auditing facsimile (FAX) documents.

24. The method of claim 19 wherein step (d) comprises retrieving and auditing facsimile voice mail documents.


13
Remote Provider
41
51
abc. Inc Data Base
39
WWW Server
47
Internet
49
43
PPP/SLIP
59
Modem
57
Browser
Address
HTTP
53
17
Kiosk
25
23
E-Mail Program
Client Mailboxes
CGI
21
E-Mail Server
45
E-Mail
HTTP
11
19
WWW Server
Local Provider
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PPP/SLIP
59
Modem
E-Mail
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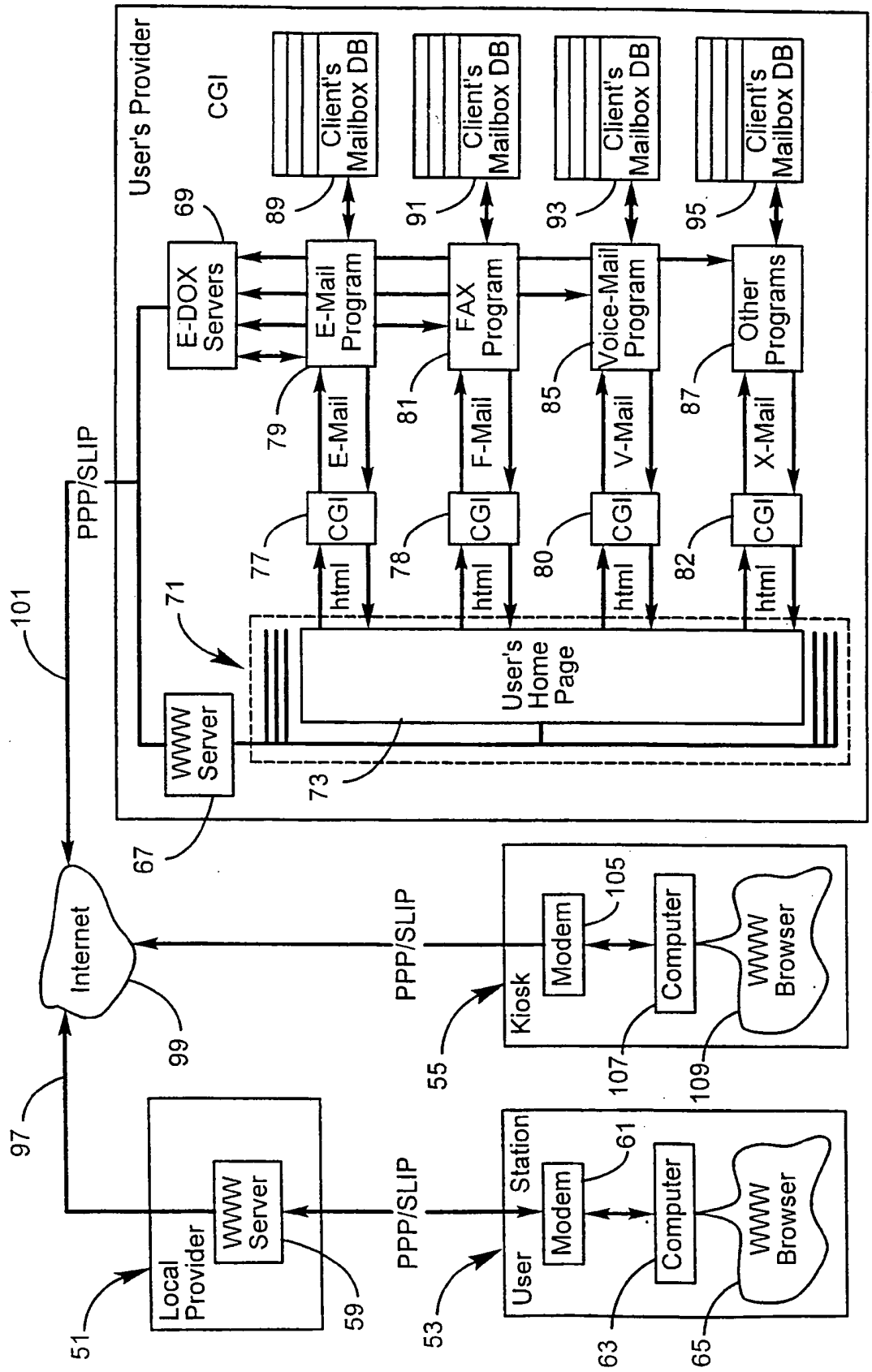
HTTP
Browser
Address
33
35
31
User Station
15

Fig. 1


User's Provider
CGI
Client's Mailbox DB
Client's Mailbox DB
Client's Mailbox DB
Client's Mailbox DB
89
91
93
95
69
E-DOX Servers
E-Mail Program
FAX Program
Voice-Mail Program
Other Programs
79
81
85
87
E-Mail
F-Mail
V-Mail
X-Mail
CGI
CGI
CGI
CGI
77
78
80
82
html
html
html
html
71
User's Home Page
WWW Server
73
67
PPP/SLIP
101
Internet
99
PPP/SLIP
Kiosk
Modem
105
Computer
WWW Browser
55
107
109
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Modem
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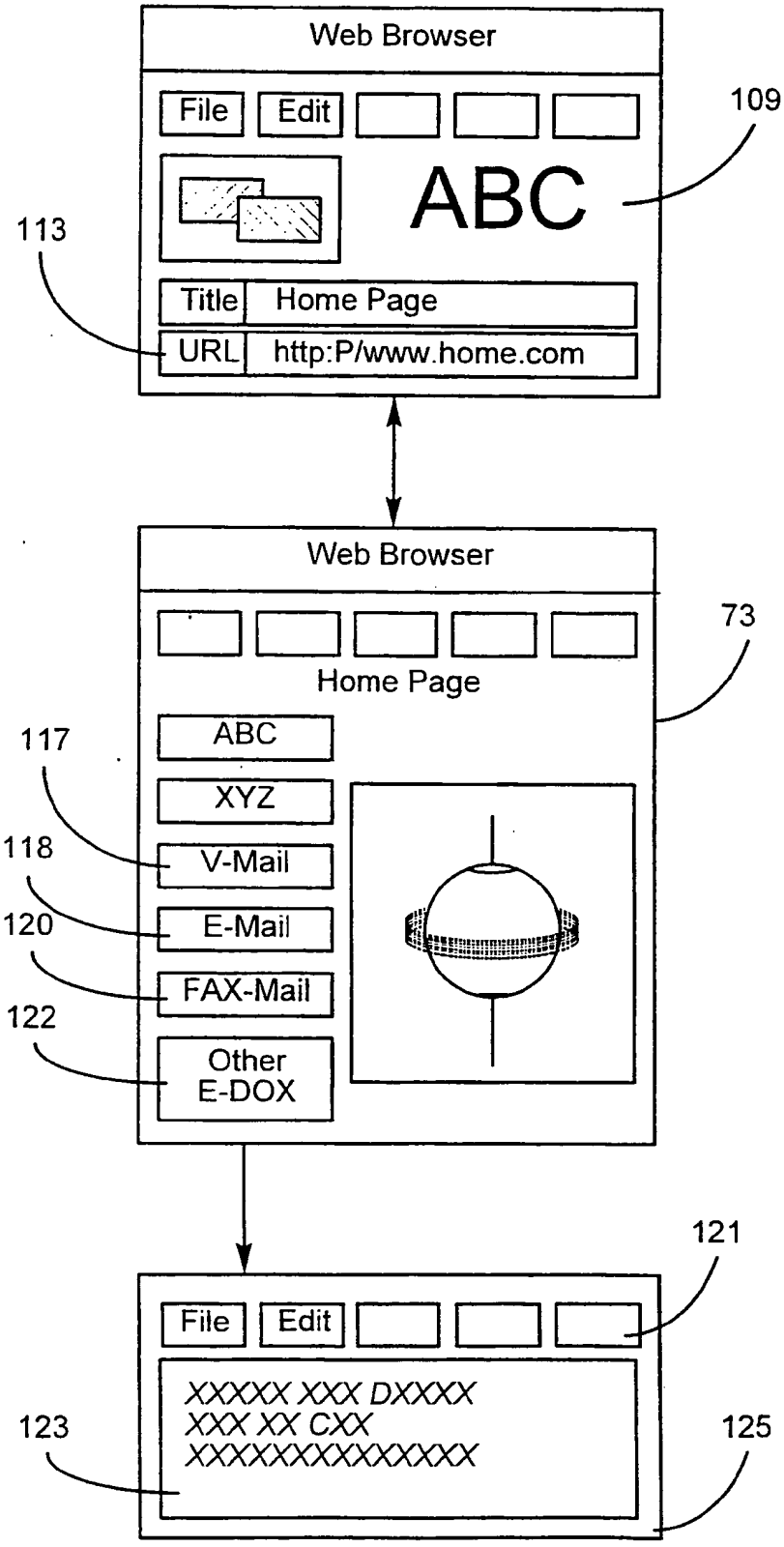
Computer
WWW Browser
53
63
65

Fig. 2


Web Browser
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Web Browser
73
Home Page
ABC
XYZ
V-Mail
E-Mail
FAX-Mail
Other
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122
121
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XXX XX CXX
XXXXXXXXXXXXX
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125

Fig. 3

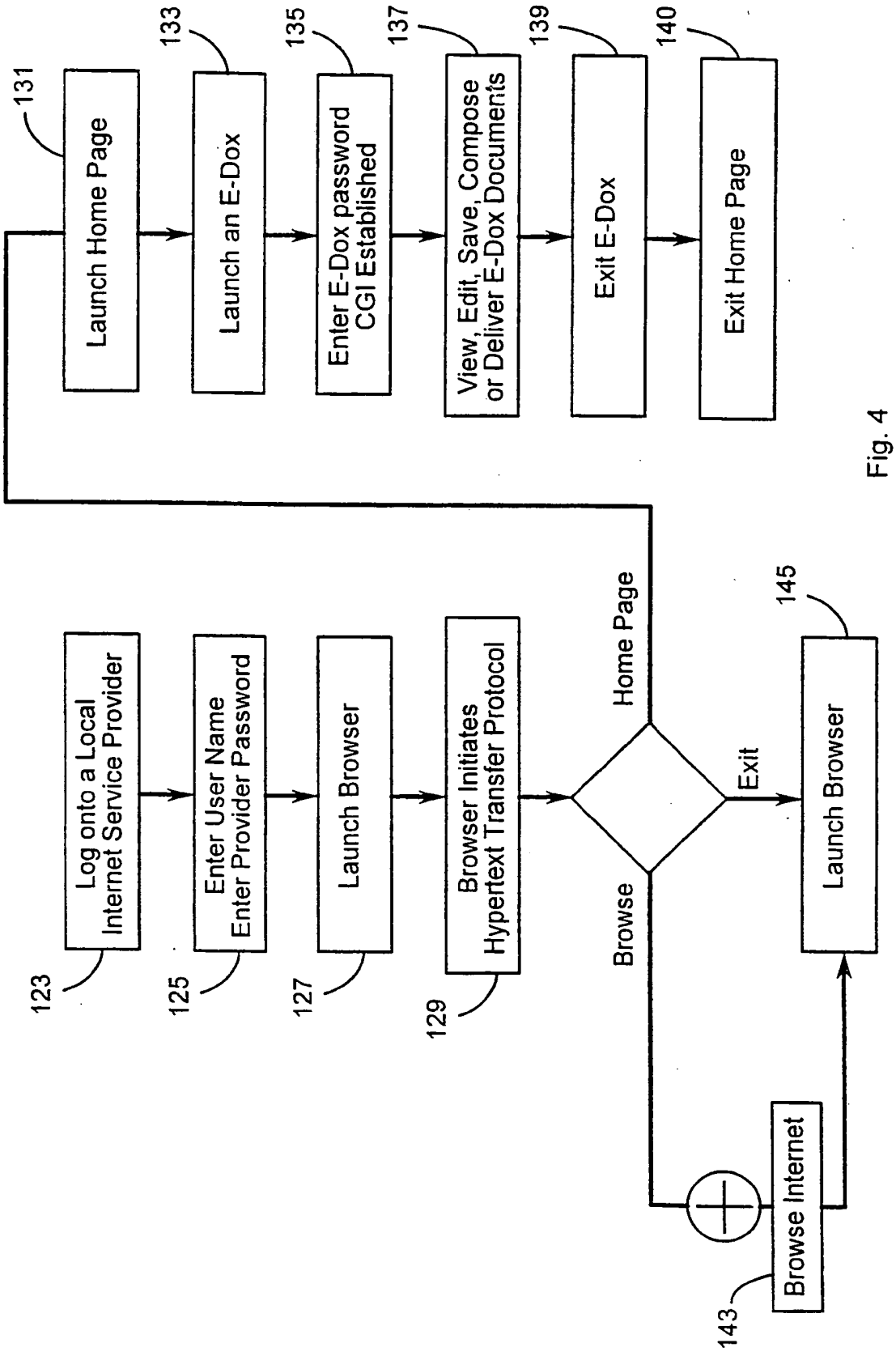
131
Launch Home Page
133
Launch an E-Dox
135
Enter E-Dox password
CGI Established
137
View, Edit, Save, Compose
or Deliver E-Dox Documents
139
Exit E-Dox
140
Exit Home Page
123
Log onto a Local
Internet Service Provider
125
Enter User Name
Enter Provider Password
127
Launch Browser
129
Browser Initiates
Hypertext Transfer Protocol
Home Page
Exit
Browse
145
Launch Browser
143
Browse Internet

Fig. 4

INTERNATIONAL SEARCH REPORT

Int. ional Application No
PCT/IB 96/00986

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 G06F17/30

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ONLINE INFORMATION 93. 17TH INTERNATIONAL ONLINE INFORMATION MEETING PROCEEDINGS, PROCEEDINGS OF SEVENTEENTH INTERNATIONAL ONLINE INFORMATION MEETING, LONDON, UK, 7-9 DEC. 1993, ISBN 0-904933-85-7, 1993, OXFORD, UK, LEARNED INF, UK, pages 453-464, XP000613558 ASSALG R ET AL: "The hypertext Internet connection: e-mail, online search, Gopher" see page 453, paragraph 1 - page 458, paragraph 3 see page 460, paragraph 4.3 - page 463, paragraph 5 --- -/--	1,4,7, 10,13, 16,19,22

[X] Further documents are listed in the continuation of box C.

[ ] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
19 December 1996	08. 01. 97

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016	Fournier, C

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INTERNATIONAL SEARCH REPORT

Int ional Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SECOND INTERNATIONAL WORLD-WIDE WEB CONFERENCE: MOSAIC AND THE WEB, CHICAGO, IL, USA, 17-20 OCT. 1994, vol. 28, no. 1-2, ISSN 0169-7552, COMPUTER NETWORKS AND ISDN SYSTEMS, DEC. 1995, ELSEVIER, NETHERLANDS, pages 3-11, XP000567384 SPERBERG-MCQUEEN C M ET AL: "HTML to the max: a manifesto for adding SGML intelligence to the World-Wide Web" see abstract ---	1,7,13, 19
A	1994 SAN MINIATO TOPICAL SEMINAR ON WORLD WIDE WEB AND BEYOND IN PHYSICS RESEARCH AND APPLICATIONS, SAN MINIATO, ITALY, 14-17 MARCH 1994, vol. 5, no. 5, ISSN 0129-1831, INTERNATIONAL JOURNAL OF MODERN PHYSICS C (PHYSICS AND COMPUTERS), OCT. 1994, SINGAPORE, pages 769-783, XP000567348 MAIOLI C ET AL: "External anchoring for wide-area network support: the RHYTHM project" see abstract see page 770, line 11 - page 772, line 1 -----	1,7,13, 19

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